CLAIMS

1. A method of determining where to place cuts in a network to result in a no-loop network, wherein the network comprises a plurality of nodes and a plurality of arcs interconnecting said nodes, the method comprising the steps of :

a) selecting a starting node, numbering said starting node as node 1 and designating each of the arcs coming from node 1 as being directed outwardly from node 1;

b) selecting one of the nodes remaining unnumbered and numbering as node n+1, where n is the number of nodes that have already been numbered, according to the following criterion:

(1) being connected to the already numbered nodes by the highest number of arcs;

and if criterion (1) provides for several possible candidate nodes, then selecting from these candidate nodes according to the following criterion:

(2) having the highest number of arcs connected thereto;

and if this still provides for several possible candidate nodes, then selecting from these candidate nodes arbitrarily;

and designating each of the undirected arcs coming from node n+1 as being directed outwardly from node n+1;

c) repeating step b until all of the nodes are numbered; and

d) placing cuts in the nodes between pairs of incoming arcs.

2. A method of determining where to place cuts in a network to result in a no-loop network in accordance with claim 1, wherein the starting node is selected as being a node with the highest number of connected arcs, and if there is more than one candidate, the starting node is chosen arbitrarily from the candidates.

3. A method of implementing constraints in a hierarchical network wherein the hierarchical network comprises a plurality of nodes and a plurality of interconnecting arcs in the physical layer arranged into one or more peer groups, each peer group being considered as a logical group node in a higher level peer group in the hierarchy, with an arbitrary number of such hierarchical levels, the method comprising the steps, performed independently for each peer group, of:

a) placing cuts or meta-cuts in the nodes of a peer group such that said peer group is a no-loop network;

b) if meta-cuts were determined in step a), implementing the meta-cuts as routing constraints in the network, so that for any node in which a meta-cut has been placed between two arcs, controlled traffic entering by way of one of said two arcs is prevented from leaving the lower level peer group represented by the node, by way of the second of said two arcs, and vice versa.

4. A method of implementing constraints in a hierarchical network in accordance with claim 3, wherein the implementation of said routing constraints in the network comprises the steps of:

the peer group leader of the lower level peer group, corresponding to the Logical Group Node containing the said meta-cut, performing a check to determine if a connection request from a peer group connected to said peer group by one of two said arcs is destined for a peer group connected to said peer group by the other of two said arcs; and

rejecting the connection request if the result of the check is true.

5. A method of implementing constraints in a hierarchical network in accordance with claim 3, wherein the implementation of said routing constraints in the network comprises introducing cuts in said lower level peer group.

6. A method of implementing constraints in a hierarchical network in accordance with claim 5, wherein the cuts are introduced in said lower level peer group by:

A) if the external arcs in the lower level peer group represented by said two arcs are connected to two different lower level nodes, selecting the lower level node which terminates the smaller number of internal arcs, or if the two different lower level nodes terminate the same number of internal arcs then select one of the nodes arbitrarily; and

placing cuts in said selected lower level node between the external arc and each of the internal arcs connected to said selected lower level node; or

B) if the external arcs in the lower level peer group represented by said two arcs are connected to the same lower level node;

placing a cut between the external arcs in said lower level node.